



Waves, Wind, Water, and Ice

Lesson 1

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What Causes Changes to Earth's Surface?2



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What Causes Changes to Earth's Surface?



VOCABULARY



earthquake



landslide



creep



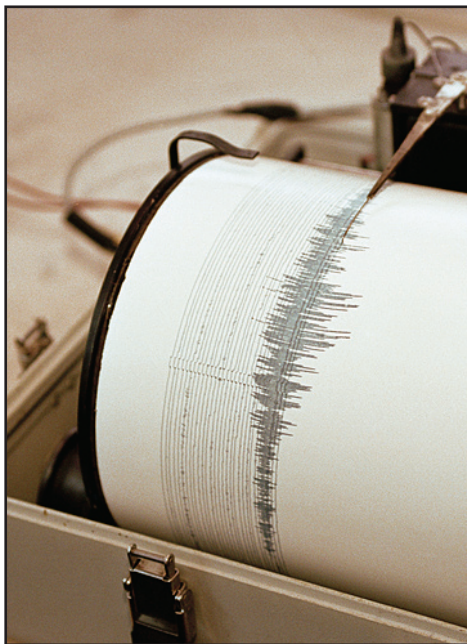
volcano



lava



dune



A seismograph records the shaking of the earth from an **earthquake**.



A **landslide** can be very dangerous. Rock and soil suddenly slip downhill.



🔊 **Creep** can slowly block mountain roads.



🔊 This mountain is a **volcano** that was formed by molten rock.



🔊 **Lava** can flow quickly down a volcano's side.



🔊 A **dune** can change shape when the wind blows.



READING FOCUS SKILL

COMPARE AND CONTRAST

You **compare** when you look at how things are alike. You **contrast** when you look at how things are different.

Compare and contrast how quickly earthquakes and creep change Earth's surface.

Earthquakes and Landslides

🔊 Giant slabs of rock move in Earth's crust. An **earthquake** is the shaking of Earth's crust. Shaking is caused by sudden movements of the slabs.

🔊 Earthquakes cause fast changes in Earth's surface. Huge cracks open. Parts of the ground tilt up. Mountains can rise higher. Buildings can break and fall down.

🔊 A landslide also happens quickly. A **landslide** is when rocks and dirt rush down a hillside. Piles of dirt and rocks are left at the bottom. Holes are left where dirt, trees, rocks, and houses used to be.

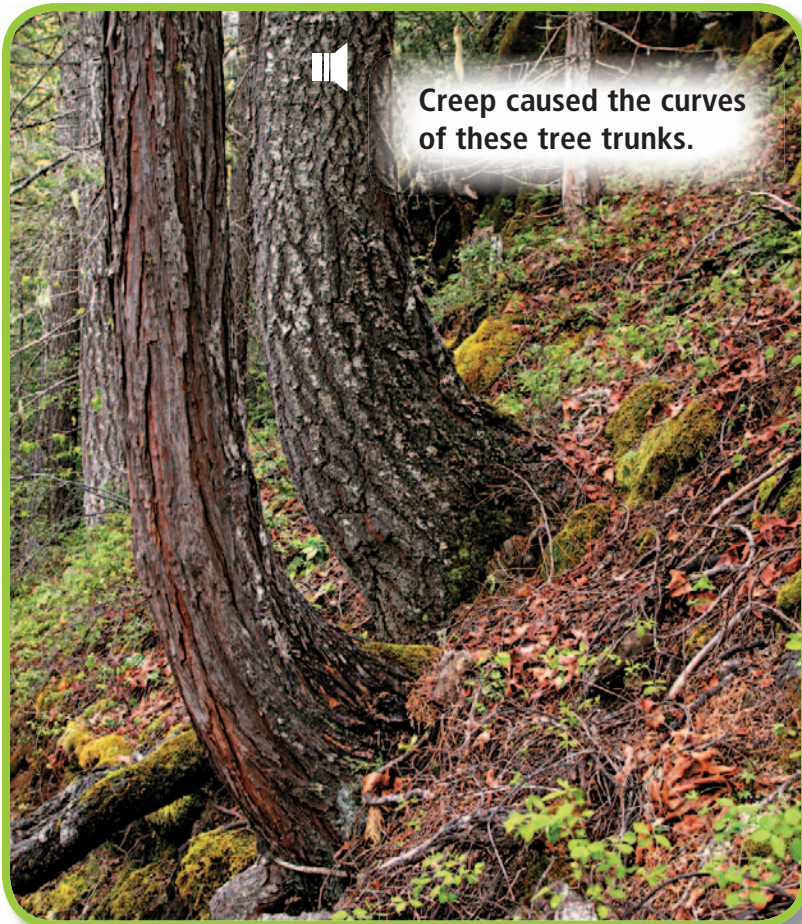


🔊 The ground moved along the crack. The movement was part of an earthquake.

Some changes to Earth's surface happen slowly. **Creep** is when dirt and rocks move very slowly down a hillside. The dirt and rocks can move things in their path. Over time, fence posts on a hill become tilted. Over a long time, creep can even flatten a hill.



Contrast how an earthquake and creep change Earth's surface.



Volcanoes

A **volcano** is a mountain formed by the flow of lava. Lava flows from a crack in Earth's surface. **Lava** is molted, or melted, rock at Earth's surface.

Volcanoes cause harmful or helpful changes. The ash from a volcanic eruption can break down into rich soil. Lava from volcanoes in the sea can form new land.

 **Contrast harmful and helpful changes a volcano can cause.**



Mount Shasta is a large volcano in California

Ice and Wind

Glaciers are huge sheets of ice. The slow movement of glaciers changes Earth's surface. Glaciers make valleys wider and gradually scoop holes in Earth.

Wind changes Earth's surface, too. A **dune** forms when wind blows sand into a mound. Dunes are common in the desert.



Contrast the changes that wind and glaciers cause.

Wind can build huge sand dunes.



Review



Complete these **compare** and **contrast** statements.

- _____ and _____ both change Earth's surface.
- _____ causes change to Earth's surface slower than a _____ does.
- Volcanoes can cause harmful or _____ changes.
- Changes to Earth's surface can happen _____ or slowly.

GLOSSARY

-  **creep** [KREEP] The slow movement of soil or rock downhill.
-  **dune** [DOON] A large mound of sand piled up by wind.
-  **earthquake** [ERTH•kwayk] A shaking of Earth's surface, caused by movement of rock in the crust.
-  **landslide** [LAND•slyd] The sudden movement of rock and soil downhill.
-  **lava** [LAH•vuh] Molten rock that flows from a volcano onto Earth's surface.
-  **volcano** [vahl•KAY•noh] A mountain that forms as molten rock flows through a crack onto Earth's surface.

Think About the Reading

-  **1.** What can you do to help you remember what you have learned in this chapter?
-  **2.** What questions do you have after reading this book?
How can you find the answers to your questions?

Hands-On Activity

Use sand to model a dune. Explain how the dune was made. You can do one of these.

-  **1.** Use your breath to show how the wind erodes dunes.
-  **2.** Roll a pebble down the dune to show erosion.

School-Home Connection

Explain to a family member what you have read about changes to Earth's surface. Ask a family member to describe changes he or she has seen.